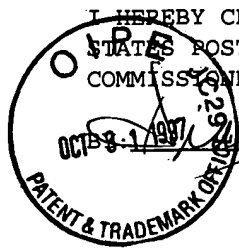


Cp-3102



I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL IN AN ENVELOPE ADDRESSED TO: ASSISTANT COMMISSIONER FOR PATENTS, WASHINGTON, D.C. 20231, ON THE DATE INDICATED BELOW.

DATE: 10/29/97

#4

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Patent Application of : Group Art Unit: 3102
James Golinveaux et al. :
:
Appln. No.: 08/813,780 : Examiner:Unknown
:
Filed: March 7, 1995 :
:
For: LOW PRESSURE EARLY :
SUPPRESSION FAST RESPONSE: Attorney Docket
SPRINKLERS : No. 5903-144

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GROUP 3100

INFORMATION DISCLOSURE STATEMENT

It is requested that the references listed on the attached Information Disclosure Citation Form PTO-1449 (3 sheets), copies of which are enclosed, be considered by the Patent Examiner in connection with the above-identified application and be made of record therein.

Independent consideration and acknowledgment of the enclosed references are respectfully requested.

While not required under the Rules, the following remarks are offered to explain the relevance perceived by the undersigned representative of the various "Other Documents",

which are identified on the last two sheets of attached Form PTO-1449 and are numbered consecutively from 1 to 27.

**INDUSTRY STANDARDS FOR PRIOR ART EARLY SUPPRESSION FAST RESPONSE
(ESFR) SPRINKLERS (ITEMS 1-3)**

Items 1 and 3 are laboratory test standards for Underwriters Laboratories, Inc. and Factory Mutual Research Corporation, respectively, and items 2 is an industry installation standard for conventional, prior art ESFR (14 K-factor) sprinklers.

PRIOR ART ESFR SPRINKLERS (ITEMS 4-8)

Items 4-8 represent product literature for five different, conventional, prior art ESFR sprinklers from four different manufacturers: the Automatic Sprinkler Company of America, Grinnell Corporation, the Reliable Automatic Sprinkler Company and Central Sprinkler Company.

**ALLEGEDLY PRIOR ART "OLD-STYLE" AND SPECIALITY CEILING SPRINKLERS
(ITEM 9-12 AND 24-27)**

These are several drawings and photographs of alleged prior art sprinklers, which were produced to Central Sprinkler ("Central") in connection with its litigations with Grinnell Corporation ("Grinnell"), The Reliable Automatic Sprinkler Co. ("Reliable") and The Viking Corp. ("Viking") for infringement of Central's U.S. Patent 5,366,022. All of the devices identified

in these drawings and photographs allegedly predate the invention of the present application. However, applicants reserve the right to contest the availability of any as prior art against the present invention if relied upon by the Examiner.

Items 9 and 24. I.S. Co. Sprinkler. The sample sprinkler shown in the color photos (Item 24) was produced by third parties as allegedly self-authenticating prior art from 1903. The deflector was alleged to be shown in the drawing which is Item 9. The orifice was plugged and could not be directly measured but appeared to have a minimal outlet diameter of about 1.00 inch. The deflector has 12 spirally oriented slots and three circular openings spaced inwardly on the deflector from the inner ends of the slots. Radial spacing of each of the three openings through the top of the deflector from the deflector center was 0.45 inches. Radial spacing from the center deflector to the innermost edge of each slot was 0.93 inches. The other deflector dimensions listed in the drawing appear accurate.

Item 25. Globe 280 Sprinkler. The sprinkler depicted in the photos was also produced as a self-authenticating piece of prior art from 1926. No drawings were produced. Although blocked, the orifice appears to have an innermost diameter of about 1.18 inches and an axial orifice to deflector spacing

greater than 3 inches. The outside diameter of the deflector was 2.35 inches. Twelve uniformly sized and spaced radial slots were provided extending inwardly from the outer periphery of the deflector. The slots were tapered from about 0.3 to 0.15 inches. Radial (perpendicular) distance from the deflector center to the innermost ends of the slots was about 0.88 inches. Radial (perpendicular) length of the slots was about 0.30 inches. Six holes were also provided through the top of the deflector spaced inwardly from the inward ends of the slots. Each hole was spaced about 0.65 inches from the center of the deflector. Tangents to the outermost surfaces of the deflector between the slots and facing the orifice defined an approximately 70° included angle facing the orifice.

Items 10-12, 26 and 27. Grinnell Jumbo A Sprinklers
(1½" and 1"). The pertinent dimensions for these two sprinklers, which share the same deflector, can be taken from the enclosed items. The smallest of the two has a sprinkler body with a one inch nominal orifice diameter and K-factor of 19.7 (Item 34). The common deflectors have an outer diameter of 1.75 inches. Twenty-four slots are provided and define a solid central area within the slots of 1.6 inches in diameter. The tines between the slots are uniform 1/8 inch in width. The slots formed

between the tines have a 0.075 inch radial length. The outlet orifice to deflector spacing is 2.0 inch or more.

IMPORTANT BACKGROUND (ITEMS 13-23)

These are fire protection industry publications or documents from the two major U.S. testing laboratories, Underwriters Laboratories and Factory Mutual, which provide a chronology for the development of early suppression fast response sprinklers and other high fire challenge sprinklers.

Item 13, excerpts from FIRE BEHAVIOR AND SPRINKLERS, discusses or summarizes at pages 73 through 83, the development of sprinklers, the distribution patterns of old style and modern "standard" or "spray" sprinklers as well as briefly describes the distribution and fire tests which such standard sprinklers undergo for acceptance or listing. The remainder of the document, pages 84-90, is a description of how sprinklers, including standard sprinklers, are believed to operate to control or suppress fires.

Item 14. (Newsletter for FIRE PROTECTION ENGINEERS AND INDUSTRY). An article spanning pages 5 and 6 refers to the desirability of providing a "high pressure, large-orifice" sized head which could permit wider spacing of the head, sufficiently

to cover a 20' wide bay with water at least ordinary hazard density (0.22 gpm/sq.ft.). No actual use was reported.

Items 15 through 18. These are technical reports of Factory Mutual Research which chronicle the development of early suppression fast response sprinklers roughly over the period of 1971 through 1986. **Item 15** reports fire tests conducted with 1.29 in orifice prototype sprinklers in 20' x 20' "triangular" (e.g. staggered square) spacing at densities of about 0.5 to 0.7 gpm/sq.ft. At pages 30 and 31, the report concludes equivalent protection could be provided at 15' x 15' spacing with one inch orifice sprinklers and at 10' x 10' spacing by extra-large orifice (0.64 in.) sprinklers. **Item 16** reports the testing of three subsequent prototype extra-large orifice pendent nozzles by Factory Mutual in connection with studies of plastic fed high challenge fires. These prototypes are depicted at page 12. Sprinklers were tested in square 10' x 10' grids (page 19) or "20' x 20'" triangular or staggered arrangement shown in Figures 18 and 22. **Item 17** discloses testing of various experimental devices including a nozzle having a K-factor of 33. **Item 18** constitutes the beginning two portions (I, II) as well as the discussions and conclusions (VI and VII) of large scale fire testing involving the original ESFR automatic sprinklers.

Item 19 represents a summation of the development ESFR automatic sprinklers at Factory Mutual.

Item 20 is an updated summary of large orifice sprinklers including ESFR's at Factory Mutual.

Item 21 includes an announcement of the approval of second and third ESFR sprinklers as well as a summary of the principles behind the operation of such sprinklers.

Item 22 is excerpts from the Seventeenth Edition of the Fire Protection Handbook printed in 1991. Section 5/Chapter 9, "AUTOMATIC SPRINKLER SYSTEMS" introduces at page 5-131 references to ESFR sprinklers. Section 5/Chapter 10, "THEORY OF AUTOMATIC SPRINKLER PERFORMANCE" discusses in greater detail, "Required Delivered Density" and "Actual Delivery Density", which were the concepts by which early suppression was quantified for early suppression, fast response. Section 5/Chapter 12, "AUTOMATIC SPRINKLERS" lists large-drop and extended coverage sidewall sprinklers under the heading "SPRINKLERS FOR SPECIAL SERVICE CONDITIONS" and also lists, for the first time, extra-large orifice sprinklers. (Page 5-184). Section 5/Chapter 13, "FAST RESPONSE SPRINKLER TECHNOLOGY" is also new and, at pages 5-193 discusses early suppression fast response and quick response high challenge large-drop sprinklers.

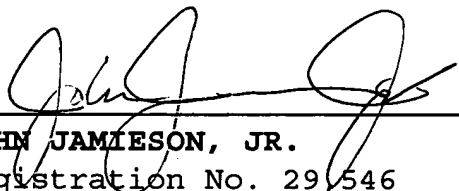
Item 23 constitutes the presentation notes and slides of Kerry Bell, of Underwriter's Laboratories, Inc., to the American Fire Sprinkler Association in or about November, 1992. The presentation chronicles the development of all larger than large orifice specialty sprinklers. The text pages are numbered P 001382 through P 001400. The slides are labeled P 006639 through P 006678. Page P 006647 chronicles the year of first listing for the various larger K-factor sprinklers. Page P 006650 lists the relation of each type of sprinkler to NFPA 13 provisions permitting its use. Page P 00651 summarizes maximum spacing and protection areas and minimum pressures for each type of sprinkler.

Respectfully submitted,

GEORGE G. MEYER ET AL.

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(Date)

By:


JOHN JAMIESON, JR.
Registration No. 29,546
PANITCH SCHWARZE JACOBS & NADEL, P.C.
1601 Market Street - 36th Floor
Philadelphia, PA 19103
Telephone: (215) 567-2020
Facsimile: (215) 567-2991

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Enclosure